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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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21839	7590	01/04/2005	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			OSMAN, RAMY M	
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ALEXANDRIA, VA 22313-1404			2157	

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/680,990	TUCKER, RUSTY
Examiner	Art Unit	
Ramy M Osman	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 14 October 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-80 is/are pending in the application.
4a) Of the above claim(s) 11-13,31-33,51-53 and 71-80 is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 1-10,14-30,34-50 and 54-70 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. ____ .
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ .
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____ .

DETAILED ACTION***Status of claims***

1. This communication is responsive to the RCE amendment filed on October 14, 2004. Claims 1,14,21,34,41,54 and 61 were amended. Claims 11-13,31-33,51-53 and 71-80 were previously canceled. Claims 1-10,14-30,34-50 and 54-70 are pending. The rejections cited are as stated below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1,3,4,21,23,24,41,43,44,61,63,64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellaton (U.S. Patent No. 6,473,425).**

4. In reference to claims 1,21,41,61, Bellaton teaches a method, a network, a computer readable medium, and a computer network for real time transmission of information content between a network server and a network client comprising the steps of:

Transmitting successive packets of said content from said server to a retransmit module (columns 1 lines 1-45 & column 7 lines 50-67 & column 8 lines 1-25, Bellaton discloses transmitting packets from a source to a router);

Assigning at said retransmit module to each of said packets a sequence number and a first timer (column 3 lines 10-45, column 8 lines 25-67 & column 9 lines 1-40, Bellaton discloses assigning packet ID information and assigning a timer when packet is sent);

Transmitting further each of said packets from said retransmit module to said network client (columns 1 lines 1-45, Bellaton discloses transmitting a packet from a router to a destination);

Transmitting from said network client to said retransmit module an acknowledgment for each of said packets received at said network client (column 3 lines 10-45, column 4 lines 1-40 & column 5 lines 20-67, Bellaton discloses receiving an acknowledgement from the destination (client));

Retransmitting from said retransmit module any of said packets upon expiration of said first timer assigned thereto prior to an acknowledgment for said any one of said packets being received (column 3 lines 10-45, column 4 lines 1-40 & column 5 lines 20-67, Bellaton discloses retransmitting the packet); and

Removing from said retransmit module any of said packets upon an occurrence of a predetermined event prior to an acknowledgement for said any of said packets being received (column 5 lines 20-67, column 6 lines 25-67, & column 9 lines 40-67, Bellaton discloses dropping a packet prior to an acknowledgement).

Bellaton fails to explicitly teach designating said packet as either one of a frame packet and a differential packet based upon the content of said packet. However, Bellaton teaches two types of packets, where the first type of packet is of a shorter length while the second type of packet is of a longer length. When the longer packet is determined to be

present in the queue then the shorter packet is removed, and the longer packet is then retransmitted. The longer packet (frame packet) is kept in the queue because the longer packet contains critical information and is prioritized above the shorter packet (differential packet). This way critical information is retransmitted and network congestion is avoided. (Abstract, column 6 lines 40-55 and column 8 lines 40-55)

It would have been obvious for one of ordinary skill in the art to modify Bellaton by designating the longer packet as a frame packet and the shorter packet as a differential packet based upon the content of said packet, and wherein differential packets are removed more frequently than frame packets because the longer packet contains critical information and is prioritized above the shorter packet. This way critical information is retransmitted and network congestion is avoided.

5. In reference to claims 3,23,43,63, Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 1,21,41 and 61 above, further comprising removing from said retransmit module any of said packets upon said acknowledgment for said any one of said packets being received prior to expiration of said first timer (column 3 lines 10-45, column 4 lines 1-40, column 5 lines 20-67 & column 6 lines 25-67, Bellaton discloses not retransmitting a packet if an acknowledgement is received).

6. In reference to claims 4,24,44,64, Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 1,21,41 and 61 above, further comprising placing said acknowledgment for differing ones of said packets into a coalesced acknowledgment (column 4 lines 1 -40, column 5 lines 1-1 5, Bellaton

discloses allowing a sequence of packets to be transmitted in a window combining the acknowledgement into a single acknowledgement).

7. Claims 2,22,42,62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellaton (U.S. Patent No. 6,473,425) in view of Miller et al. (U.S. Patent No. 6,247,058).

Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 1,21,41 and 61 above. Bellaton fails to teach assigning at said retransmit

module to each of said packets a second timer wherein expiration of said second timer is said occurrence of said predetermined event. However Miller teaches a timeout interval used to preserve network bandwidth by discarding old packets after the timer expires (column 4 lines 30-67 and column 8 lines 20-50).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by dropping packets based on an interval timer as per the teachings of Miller so as to preserve network bandwidth by discarding old packets after the timer expires.

8. Claims 5-10,25-30,45-50,65-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellaton (U.S. Patent No. 6,473,425) in view of Lindsay (U.S. Patent No. 6,564,267).

9. In reference to claims 5,25,45,65, Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 1,21,41 and 61 above. Bellaton fails to teach maintaining the bandwidth of said successively transmitted packets

to the lesser of a congestion window initially determined to be maximum segment size and a client window size no greater than the size of a UDP socket input buffer at said client. However Lindsay teaches maintaining bandwidth of transmitted packets to the smaller of a first maximum segment size and a host accepted second maximum segment size (column 2 lines 20-67 and column 4 lines 5-45).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by maintaining bandwidth of transmitted packets to the smaller of a first minimum segment size as per the teachings of Lindsay and a host accepted window size as taught by Bellaton so that the connection can support different hosts.

10. In reference to claims 6,26,46,66, Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 5,25,45 and 65 above. Bellaton fails to teach wherein said congestion window is increased by the size of each packet for which an acknowledgment is received. However Lindsay teaches receiving an acknowledgement and increasing the window size (column 2 lines 20-67 and column 5 lines 15-50 and column 7 lines 10-55).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by increasing the window size when an acknowledgement is received as per the teachings of Lindsay to allow more packets to be sent in the connection and reduce redundancy.

11. In reference to claims 7,27,47,67, Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 6,26,46 and 66 above. Bellaton fails to teach wherein said congestion window is increased until said congestion window exceeds a predetermined threshold, and increase thereafter by said maximum

segment size for each acknowledgment received. However Lindsay teaches receiving an acknowledgement and increasing the window size by the maximum segment size (column 5 lines 15-50, column 7 lines 1 0-55 and column 10 lines 1-45).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by increasing the window size when an acknowledgement is received as per the teachings of Lindsay to allow more packets to be sent in the established connection and reduce redundancy.

12. in reference to claims 8,28,48,68, Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 7,27,47 and 67 above. Bellaton fails to teach wherein said threshold is determined by a window size that is least known to be error free in receipt of said successively transmitted packets. However Lindsay teaches a window size determined to be free of errors (column 5 lines 15-67, column 6 lines 15-67).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by determining an error free window size as per the teachings of Lindsay to allow more packets to be efficiently sent in the connection.

13. In reference to claims 9,29,49,69, Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 7,27,47 and 67 above. Bellaton fails to teach wherein said threshold is, upon retransmitting of any of said packets, set to the greater of 1/2 of the current congestion window size or maximum segment size. However Lindsay teaches setting the window size to less than the maximum segment size (column 5 lines 15-67, column 6 lines 15-67).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by setting the window size to less than the maximum segment size as per the teachings of Lindsay to transmit packets while increasing performance.

14. In reference to claims 10,30,50,70, Bellaton teaches the method, the network, the computer readable medium, and the computer network of claims 9,29,49 and 69 above. Bellaton fails to teach wherein said congestion window is reset to said maximum segment size. However Lindsay teaches setting the window size to the maximum segment size (column 5 lines 15-67, column 6 lines 1 5-67).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by setting the window size to the maximum segment size as per the teachings of Lindsay to transmit packets while increasing performance.

15. **Claims 14-20,34-40,54-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellaton (U.S. Patent No. 6,473,425) in view of Gubbi et al. (U.S. Patent No. 6,574,668).**

16. In reference to claims 14,34,54 Bellaton teaches a method, a network and a computer readable medium for acknowledging receipt of packets sent from a network server to a network client comprising steps of:

Transmitting successively packets from said server (columns 1 lines 1-45 & column 7 lines 50-67 & column 8 lines 1-25, Bellaton discloses transmitting packets from a source/server)

Receiving at said client several of said packets (columns 1 lines 1-45, Bellaton discloses transmitting a packet to a destination/client)

Placing into a coalesced acknowledgment an ID of a first one of said several of said packets received at said client (column 3 lines 10-45, column 8 lines 25-67 & column 9 lines 1- 40, Bellaton discloses assigning packet ID information and assigning a timer when packet is sent); (column 4 lines 1-40, column 5 lines 1-15, Bellaton discloses allowing a sequence of packets to be transmitted in a window combining the acknowledgement into a single acknowledgement)

Transmitting to said server said coalesced acknowledgment (column 4 lines 1-40, column 5 lines 1- 15, Bellaton discloses allowing a sequence of packets to be transmitted in a window combining the acknowledgement into a single acknowledgement).

Bellaton fails to teach adding to said coalesced acknowledgment a bit map identifying selected other ones of said several of said packets received at said client. However Gubbi teaches a packet retransmission scheme with a bitmap indicating acknowledgement status of the received packets (see Abstract, column 7 lines 30-60 and column 8 lines 1-20)

It would have been obvious to one having ordinary skill in the art to modify Bellaton by adding a bitmap identifying packets received at client to an acknowledgement as per the teachings of Gubbi so that a single command / acknowledgement packet can be used thus reducing redundant transmissions.

Bellaton fails to explicitly teach designating said packet as either one of a frame packet and a differential packet based upon the content of said packet. However, Bellaton teaches two types of packets, where the first type of packet is of a shorter length while the second type of packet is of a longer length. When the longer packet is determined to be present in the queue then the shorter packet is removed, and the longer packet is then

retransmitted. The longer packet (frame packet) is kept in the queue because the longer packet contains critical information and is prioritized above the shorter packet (differential packet). This way critical information is retransmitted and network congestion is avoided. (Abstract, column 6 lines 40-55 and column 8 lines 40-55)

It would have been obvious for one of ordinary skill in the art to modify Bellaton by designating the longer packet as a frame packet and the shorter packet as a differential packet based upon the content of said packet, and wherein differential packets are removed more frequently than frame packets because the longer packet contains critical information and is prioritized above the shorter packet. This way critical information is retransmitted and network congestion is avoided.

17. In reference to claims 15,35,55 Bellaton teaches the method, the network and the computer readable medium of claims 14,34 and 54 above. Bellaton fails to teach sequentially assigning a sequence number as said ID to each of said successively transmitted packets. (column 4 lines 1-40, column 5 lines 1-15 & column 9 lines 1-40, Bellaton discloses signing packet ID information, a sequence number given to the packets).

18. In reference to claims 16,36,56 Bellaton teaches the method, the network and the computer readable medium of claims 15,35 and 55 above. Bellaton fails to teach wherein said coalesced acknowledgment is sent upon said sequentially assigned sequence numbers being wrapped. (column 4 lines 1-40, column 5 lines 1-15 & column 9 lines 1-40, Bellaton discloses allowing sequenced packets to be transmitted in a window combining the acknowledgement into a single acknowledgement).

19. In reference to claims 17,37,57 Bellaton teaches the method, the network and the computer readable medium of claims 16,36 and 56 above. Bellaton fails to teach sending an acknowledgment for any packet having a sequence number out of sequence with said sequence number of an immediately received one of said packets. (column 4 lines 1-40, column 5 lines 1-15 & column 9 lines 20-67, Bellaton discloses a queue controller controlling and acknowledging packets even with a packet out of sequence).
20. In reference to claims 18,38,58 Bellaton teaches the method, the network and the computer readable medium of claims 15,35 and 55 above. Bellaton fails to teach wherein said coalesced acknowledgment is sent upon expiration of a predetermined time from a prior coalesced acknowledgment being sent (column 4 lines 1-40, column 5 lines 1-15 & column 9 lines 1 -55, Bellaton discloses an acknowledgement being sent after a packet is retransmitted in accordance with the expiration of a timer).
21. In reference to claims 19,39,59 Bellaton teaches the method, the network and the computer readable medium of claims 18,38 and 58 above. Bellaton fails to teach wherein said coalesced acknowledgment is sent upon expiration of said predetermined time in the event said client has unacknowledged ones of said packets (column 4 lines 1-40, column 5 lines 1-15 & column 9 lines 1-55, Bellaton discloses an acknowledgement being sent after a packet is retransmitted in accordance with the expiration of a timer where host has not received acknowledgement).
22. In reference to claims 20,40,60 Bellaton teaches the method, the network and the computer readable medium of claims 15,35 and 55 above. Bellaton fails to teach wherein said coalesced acknowledgment is sent when said bitmap is full. However Gubbi teaches a packet retransmission scheme with a bitmap indicating acknowledgement status of the

received packets and sending the acknowledgement when the bitmap is set (see Abstract, column 7 lines 30-60 and column 8 lines 1-20)

It would have been obvious to one having ordinary skill in the art to modify Bellaton by sending the acknowledgement when the bitmap is set as per the teachings of Gubbi so that a single command/acknowledgement packet can be used thus reducing redundancy transmissions.

Response to Amendment

23. Examiner acknowledges the amendment filed on 10/14/2004 where claims 1,14,21,34,41,54 and 61 were amended.

Response to Arguments

24. Applicant's arguments with respect to claims 1-70 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US Patent No 6,621,799, Kemp et. al., which discloses a semi-reliable connectionless protocol.

US Patent No. 5,905,871, Buskens et al, which discloses retransmission with acknowledgements.

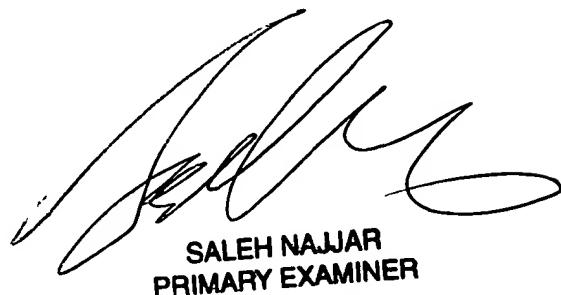
US Patent No 6,252,848, Skirmont, which discloses dropping packets from a queue based on packet properties.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramy M Osman whose telephone number is (571) 272-4008. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMO
December 20, 2004



SALEH NAJJAR
PRIMARY EXAMINER